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1918/19

BULLETIN
OF
PURDUE UNIVERSITY.

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JAN 8 1931

VOL. XVIII

MARCH, 1918

No. 4

CIRCULAR OF INFORMATION
CONCERNING THE
SCHOOL OF PHARMACY
1918-1919



Prescription Room

PUBLISHED BY PURDUE UNIVERSITY AT LAFAYETTE, INDIANA, IN NOVEMBER,
DECEMBER, JANUARY, FEBRUARY, MARCH AND APRIL. Entered at the Post
Office at LaFayette as second class matter under the Act of July 16th, 1894.

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UNIVERSITY CALENDAR

1918

September 6	8 A. M.	Fall Entrance Examinations begin.
September 7 to 11.....	8 A. M.	Registration of Resident Students.
September 11	11 A. M.	First Semester begins.
November 28		Thanksgiving Day. Holiday.
December 21	12 M.	Christmas Recess begins.

1919

January 7	1 P. M.	Christmas Recess ends.
January 27	8 A. M.	Second Semester Registration begins.
February 1	12 M.	First Semester ends.
February 3	8 A. M.	Second Semester begins.
May 30		Memorial Day.
June 7	12 M.	Second Semester ends.
June 11		Commencement.

†Appointed January 6, 1917

CORPS OF INSTRUCTORS, 1917-18

CHARLES BERNARD JORDAN, Ph. C., B. S., & M. S. in Pharm., U. of Mich.
Head of School of Pharmacy, Professor of Pharmaceutical Chemistry.

WILLIAM FRANCIS GIDLEY, Ph. C., B. S. in Pharm., U. of Mich. Professor
of Materia Medica.

CHARLES OREN LEE, B. S. in Pharm., U. of Kan.; M. S., U. of Chicago;
Assistant Professor of Pharmacy.

STANLEY COULTER, Ph. D., LL. D., Dean of the School of Science; Profes-
sor of Biology; Director of the Biological Laboratories.

PERCY NORTON EVANS, Ph. D., Head of the Department of Chemistry;
Professor of Chemistry; Director of the Chemical Laboratory.

ALFRED MONROE KENYON, A. M., Head of the Department of Mathematics;
Professor of Mathematics.

THOMAS FRANCIS MORAN, Ph. D., Head of the Department of History and
Economics; Professor of History and Economics.

HERMAN BABSON, A. M., Ph. D., Head of the Department of Modern Lan-
guages; Professor of German.

EDWARD AYRES, M. A., Head of the Department of English; Professor of
English.

GEORGE LUCAS ROBERTS, A. M., Head of the Department of Education;
Dean of the Summer School; Professor of Education.

ERVIN SIDNEY FERRY, B. S., Head of the Department of Physics; Profes-
sor of Physics.

FRANK BURTON ANDREWS, Major U. S. A., retired; Professor Military
Science and Tactics; Commandant of Cadets.

OLIVER FROST CUTTS, LL. B., Head of the Department of Physical Educa-
tion; Professor of Physical Education.

JAMES HARVEY RANSOM, A. M., Ph. D., Professor of General Chemistry.

EDWARD G. MAHIN, M. S., Ph. D., Professor of Analytical Chemistry.

ARTHUR RENWICK MIDDLETON, Ph. D., Professor of Inorganic Chemistry.

OLIVER PERKINS TERRY, M. S., M. D., Professor of Anatomy and Physi-
ology; University Physician.

HOWARD EDWIN ENDERS, M. S., Ph. D., Professor of Zoology.

CHARLES AUGUST BEHRENS, M. S., Ph. D., Professor of Bacteriology.

The School of Pharmacy also has the advantage of a large staff of instruc-
tors and assistants in the various departments of instruction listed above.

PREFATORY STATEMENT

Purdue University School of Pharmacy was established in 1884 in response to a growing demand for a thorough, practical and theoretical training in Pharmacy and related branches.

For over thirty years this School has served the people of Indiana and has always stood in the front rank of the profession.

More than eight hundred students have graduated from the School and are successfully pursuing the profession of Pharmacy, Medicine, Teaching, Analytical and Pharmaceutical Chemistry. Among its graduates are numbered many of the most prominent pharmacists and pharmaceutical chemists of the State and Nation.

The School has kept pace with the other departments of the University and with pharmaceutical developments in the extension and per-



Pharmacy Building

fecting of its instruction and facilities and now offers superior opportunities to those who wish to train themselves thoroughly for the important duties of the professional or manufacturing pharmacist, the pharmaceutical chemist, or the retail pharmacist.

The entrance requirements and class instruction in this School are on the same footing as those required in the other departments of the University. This department thus offers the same opportunities for study and attainment as any other in the institution, and its members participate in all the privileges and responsibilities of the entire University.

The requirements of the Pharmacy Laws of Indiana are more than satisfied by the training furnished in this School.

OPPORTUNITIES

The Purdue School of Pharmacy offers splendid opportunities for securing a thorough professional training. It is an integral part of the University and its students meet all the requirements demanded of students in the other departments of the University. Thus Pharmacy students stand upon an equal footing with the students of other departments and enjoy all the advantages and privileges of a university training. Among these advantages may be mentioned the following: Membership in technical, debating, and literary societies; attendance at many important technical and general lectures; association with a cosmopolitan student body; participation in athletics; drill in military tactics; etc.

The most necessary acquirement of the scientifically trained pharmacist is the ability to fill prescriptions accurately and understandingly, and to this end pharmaceutical education at Purdue is specially directed. The written order of a physician for medicinal agents to be used in the treatment of the sick is held too sacred for merely empirical handling unaccompanied by an intimate acquaintance with underlying principles. Purdue students are therefore trained with a view to such fundamental mastery.

The prescription room is very complete and entirely modern, and conduces to most efficient training in the art of compounding. The students study and fill a great variety of prescriptions, which have been sent in by druggists from various parts of Indiana and other states. This feature has a peculiar advantage of helping the student to become familiar with prescriptions of every character. Not only is a student carefully directed in compounding these prescriptions, but he is taught a system of numbering, pricing, and filing the prescriptions as they are filled. Instruction is given also in the filling and recording of narcotic prescriptions.

The School of Pharmacy takes an active part in the work of the Medical and Infirmary Service of the University as a whole, and compounds and dispenses all the medicines for this service. The senior students compound and dispense hundreds of prescriptions under the careful instruction and guidance of a registered pharmacist. In this way they have a practical application of their instruction in compounding.

AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

Purdue University holds membership in the American Conference of Pharmaceutical Faculties. The object of the Conference is to promote the interests of pharmaceutical education, and all institutions holding membership in the Conference must maintain certain minimum requirements for entrance and graduation. Through the influence of this Conference, higher standards of education have steadily been adopted; and the fact that several states have by law or by Board ruling recognized the standards of the Conference, is evidence of its great and beneficial influence.

WOMEN IN PHARMACY

This last half century has witnessed the advent of women into all the professions and most of the callings that are open to men, and they have proven conclusively that they are able to take their places in the field of labor with the male members of society. At this time it is especially important that women learn to do the work that heretofore has been principally assigned to men, as many of our young men have been called to the colors and it is impossible to fill their places.

In foreign countries the women have entered even the most menial callings and are acquitting themselves admirably. Fortunately the American women have splendid opportunities for choosing their calling as the urgency is not so great here as in Europe.

There is no field that offers greater opportunities for women than Pharmacy. The work is clean, pleasant, and agreeable and one that a scientifically trained woman is well fitted to do. Women in Pharmacy has long ago passed the experimental stage, as many of them are successfully conducting their own stores, and many others are ably doing the work of the dispensing laboratory. In fact, they have become so



Biology Building

important in this work that they have their own section in the National Association, known as the Woman's Section of the American Pharmaceutical Association.

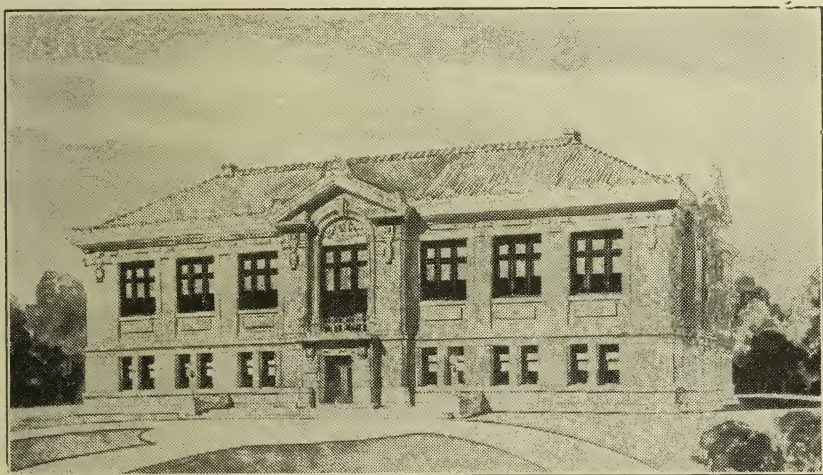
Never has there been such a demand for skilled pharmacists, and never has the recompense been as great. There was a scarcity of pharmacists before we entered the war. Many of our best men are now in service and it is impossible to fill their places. We have received many calls for lady pharmacists.

What is true in retail pharmacy is also true in analytical laboratories. There is a great demand for analytical chemists, food and drug analysts, bacteriologists, and public health workers. Women are competent to do all of this work if they have received the necessary scien-

tific training. We have graduated many ladies who have acquitted themselves excellently in their profession. Ladies constitute ten per cent of our present student body. The Purdue School of Pharmacy offers splendid opportunities for ladies to secure a scientific training, and will gladly welcome any who wish to avail themselves of the unusual opportunities that pharmacy offers them.

ADMISSION TO THE UNIVERSITY.

Those who have access to a high school are expected to complete four full years before applying for admission. The power and training given by a systematic plan of study four years in length, such as is furnished by the Commissioned High Schools of Indiana or other good schools, are essential to a student entering upon a college course, the difficulties of which tax the powers of the best prepared. Experience shows that one of the chief causes of failure in college classes is unsatisfactory preparation. Many applicants who have had good school opportunities are found to be deficient in their knowledge of preparatory mathematics, and particularly in their ability to use the English language. A thorough working knowledge of the preparatory subjects is absolutely



Library

necessary in order to begin and carry on the prescribed work of the University, and it is manifestly unfair to the applicant himself to admit him if he can not demonstrate that his preparation is sufficient to do this work successfully. On this account, applicants who do not satisfy all the stated entrance requirements will be received only in exceptional cases.

Time of Entrance

New students ordinarily enter the University at the beginning of the first semester (September 11 in 1918). It is impracticable for a student to enter later in the year unless he has completed in another college the work done by the class previous to the date of his admission.

In 1918 the registration days will be Saturday, Monday, Tuesday, and Wednesday, September 7, 9, 10 and 11. An extra fee of two dollars will be collected of students who register after the registration dates of either semester.

Application for Admission

All persons who desire to enter any department of the University should make application to the Registrar as early as possible before the opening of the first semester (September 11, 1918). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School.

Early attention to this matter will save the applicant much delay and embarrassment at the opening of the semester.



Chemistry Building

Requirements For Admission to the Freshman Class in All Schools of the University

All applicants, in order to be admitted, must be at least sixteen years of age and must furnish certificates of good character.

The scholarship requirement for admission to all schools is thorough preparation in fifteen units of High School work. A unit is the amount of work represented by five recitations a week for a school year of not less than eight months; i. e., not less than 160 recitations on prepared work or equivalent laboratory or other practice.

Of these fifteen units, the following are prescribed for all students:

English	3	units
Foreign Language	2	units
Algebra	1½	units
Plane Geometry	1	unit
*Science	1	unit
History	1	unit

To make up the total of fifteen units the University will accept additional credits in English, Foreign Language, Mathematics, Science, Social Science, History, Shop Work, Manual Training, Drawing, Domestic Science, and Agriculture.

Admission by Certificate

Admission by certificate is granted only to graduates of Commissioned High Schools of Indiana and of schools of like standing in other States at the opening of the first semester. Such graduates will be admitted without examination on credentials certifying to their age, character, scholarship, and graduation, provided the prescribed subjects are certified with the recommendation of the school official covering their acceptability. This certificate must give in detail, concerning each subject which the applicant has studied in the school, the length of time in weeks, the number of recitations per week, and the grade or mark indicating his proficiency. A blank for this certificate will be supplied to the school by the Registrar. A school diploma is not acceptable in place of the certificate.

School certificates will not be accepted in place of examination in any prescribed subject from an applicant who is not a graduate of a Commissioned High School.

Admission by Examination

Applicants who are not graduates of Commissioned High Schools are required to take the entrance examinations in the prescribed subjects. In the case of candidates admitted to the University by these examinations, the elective units will be accepted so far as may be from certificates of school work. Deficiencies in such electives must be covered also by entrance examination. Application for the entrance examinations must be made to the Registrar.

Candidates will not be admitted to examinations unless they first present certificates indicating a satisfactory amount of high school work already completed.

Entrance examinations are held at the University without charge in September of each year. Applicants are advised, however, to examine in June through the College Entrance Examination Board. They may in this way take part of the subjects in June, completing the remaining requirements by examining at the University in September; they may be re-examined in September in subjects not passed in June.

*The science of Physics is required for admission to the four year plan of study in Agriculture, Pharmacy and Science.

EXPENSES

Purdue University is a State institution, therefore the Trustees grant free tuition to all students entering from the State of Indiana. All others are required to pay an annual tuition fee of twenty-five dollars.

Following is a classified statement of all necessary expenditures of students so far as the requirements of the University are concerned:

1. Fixed University Fees.

First Semester fees are payable on registration in September. Second Semester fees are payable the last week in January. These fees are as follows:

	First Semester	Second Semester
Entrance fee, \$5.00, payable annually on matriculation.....	\$ 5.00	
Tuition fee, for students from without the state, \$25.00 per annum.....	12.50	\$12.50
Incidental fee, \$10.00 per annum.....	5.00	5.00
Laboratory and library fees, \$20.00 per annum.....	10.00	10.00
Medical and infirmary fee, \$1.00 per annum.....	1.00	
Diploma fee, \$5.00, payable on the Saturday preceding graduation.		

Payment must be made in cash or by bank draft, express order or postoffice order. No personal checks will be accepted. By order of the Board of Trustees no fees are returnable after registration.

2. University Deposits.

To cover breakage of apparatus used in laboratory courses, students are required to deposit in advance certain sums as indicated below. Any portion of this deposit not consumed is refunded at the end of the year.

Laboratory courses in **chemistry**, per annum..... \$ 5.00

When more than one such course is taken, \$5.00 per semester.

Laboratory courses in **pharmacy**, per annum..... 10.00

It is expected that the War Department of the U. S. Government will supply uniforms without cost, for use in military drill. In such case, male students entering the freshman or sophomore classes without credit for military instruction will be required to make a deposit to cover damage to uniform and equipment. Under war conditions, however, it may not be possible for the Government to supply uniforms in this way, and in lack of this, students will be required to deposit a sum amounting to approximately \$25.00 for this purpose.

3. Personal Expenses (Estimated).

Table board, per week.....\$ 4.50 up

Room rent, heat and light, 2 in a room, each, per month..... 4.50 to \$ 8.00

Washing, per week......50

Books, instruments and supplies, per annum..... 15.00 to 30.00

Second-hand books are often obtainable at reduced prices.

County Appointments.—The law of Indiana provides for the appointment of not to exceed two (2) students from each county in the State, who upon entering Purdue University, shall be exempt from the payment of certain entrance and incidental fees, amounting to \$15.00 per annum, but not from library and laboratory fees. Students seeking such appointments will carefully note the following:

1. These appointments are made annually by the Commissioners of the various counties, to whom application therefor should be made. The appointee must reside in the county from which the appointment is made. The appointment expires June 30th, but may be renewed.

2. The certificate of appointment should be filed with the University as soon as received by the appointee, as the appointment cannot be recognized until this is done. It becomes effective at the beginning of the semester next after it is filed.

3. This appointment does not apply to, nor relieve the applicant from, the requirements as to scholarship demanded for entrance to the University classes.

Prospective students, who cannot secure such appointments because the quota from the county is already filled, should not defer entering the University on that account, since the saving of money is not sufficient to offset the loss of time caused by waiting one or more years.

PLANS OF STUDY

The School of Pharmacy offers two Plans of Study giving superior opportunities to those who wish to train themselves thoroughly for the important duties of the professional or manufacturing pharmacist, the pharmaceutical chemist, or the retail pharmacist.

Two-Year Plan of Study

This plan of study leads to the Degree of Pharmaceutical Chemist and is intended to fit students for the practice of Pharmacy, including the preparation of medicine, the compounding of prescriptions, and the chemical and microscopical examination of medicinal materials. The plan of study includes the professional courses set forth in the National Pharmaceutical Syllabus, and in addition, a thorough grounding in the science—biology and chemistry—upon which pharmacy is so largely based. The number of hours of instruction given far exceeds the number required in the Syllabus.

FIRST YEAR

First Semester		Second Semester	
Courses	Hrs. per wk.	Courses	Hrs. per wk.
Plant Histology	2 Lect. 2 Lab.	Pharm. Botany	2 Lect. 2 Lab.
Physiology	3 Lect.	Gen. Chemistry	2 Lect. 3 Lab.
Gen. Chemistry	2 Lect. 3 Lab.	English	3 Lect.
English	3 Lect.	Materia Medica	2 Lect.
Materia Medica	2 Lect.	Qual. Analysis	2 Lect. 6 Lab.
Gen. Pharmacy	2 Lect. 4 Lab.	Gen. Pharmacy	2 Lect. 4 Lab.
Pharm. Arithmetic	2 Lect.	Pharm. Latin	1 Lect.
Military Training	3 Hrs.	Military Training	3 Hrs.

SECOND YEAR

First Semester		Second Semester	
Courses	Hrs. per wk.	Courses	Hrs. per wk.
Bacteriology	2 Lect.	Bacteriology	2 Lect.
Materia Medica	2 Lect.	Materia Medica	2 Lect.
Quant. Analysis	2 Lect. 6 Lab.	Drug Assay	1 Lect. 6 Lab.
Org. Qual. Analysis.....	1 Lect. 3 Lab.	Microscopy	1 Lect. 3 Lab.
Org. Chemistry	4 Lect.	Posology & Tox.....	4 Lect.
Prescript. Practice	1 Lect. 3 Lab.	Prescript. Practice	1 Lect. 3 Lab.
Com. Pharmacy	3 Lect.	U. S. P. & N. F.....	3 Lect.
Military Training	3 Hrs.	Military Training	3 Hrs.
		Pharm. Jurisprudence	1 Lect.

Four-Year Plan of Study

This Plan of Study leads to the Degree of Bachelor of Science in Pharmacy, and is intended to fit students for responsible laboratory positions with the State or Government, for the laboratory work of city chemists and bacteriologists, or for the duties of pharmaceutical chemists for manufacturing establishments, wholesale houses and importers. Recent pure food and drug legislation has created many such positions.

The demand made upon this School for laboratory workers far exceeds the supply. Men whose education has been broad and general supplemented with professional training are much in demand. The Four Year Plan of Study offers excellent opportunities to secure this training.

Electives are offered to prepare students for teaching positions.

FRESHMAN YEAR

First Semester

Courses	Hrs. per wk.
Plant. Histology	2 Lect. 2 Lab.
Gen. Chemistry	2 Lect. 3 Lab.
English	3 Lect.
Materia Medica	2 Lect.
Mathematics	3 Lect.
Gen. Pharmacy	2 Lect. 4 Lab.
Pharm. Arithmetic	2 Lect.
Military Training	3 Hrs.

Second Semester

Courses	Hrs. per wk.
Pharm. Botany	2 Lect. 2 Lab.
Gen. Chemistry	2 Lect. 2 Lab.
English	3 Lect.
Materia Medica	2 Lect.
Mathematics	3 Lect.
Gen. Pharmacy	2 Lect. 4 Lab.
Pharm. Latin	1 Lect.
Military Training	3 Hrs.

SOPHOMORE YEAR

First Semester

Courses	Hrs. per wk.
Bacteriology	2 Lect. 4 Lab.
Qual. Analysis	2 Lect. 6 Lab.
English	3 Lect.
German	3 Lect.
Org. Chemistry	4 Lect.
Military Training	3 Hrs.

Second Semester

Courses	Hrs. per wk.
Bacteriology	2 Lect. 4 Lab.
Qual. Analysis	2 Lect. 6 Lab.
English	3 Lect.
German	3 Lect.
Org. Chemistry	2 Lect. 6 Lab.
Military Training	3 Hrs.

JUNIOR YEAR

First Semester

Courses	Hrs. per wk.
Physiology	3 Lect.
Quant. Analysis	2 Lect. 6 Lab.
German	3 Lect.
History	3 Lect.
Org. Qual. Analysis	1 Lect. 3 Lab.
*Military Training	5 Hrs.

Second Semester

Courses	Hrs. per wk.
Physiology	3 Lect.
Quant. Analysis	2 Lect. 6 Lab.
German	3 Lect.
Microscopy	1 Lect. 3 Lab.
Drug Assay	1 Lect. 6 Lab.
*Military Training	5 Hrs.

ELECTIVES

Electives for the year must total eight semester hours

Adv. Bacteriology	2 Lect. 4 Lab.	Adv. Bacteriology	2 Lect. 4 Lab.
Education	3 Lect.	Education	3 Lect.
French	3 Lect.	French	3 Lect.
Adv. Mathematics	3 Lect.	Adv. Mathematics	3 Lect.
Physics	3 Lect.	Physics	3 Lect.
Physiological Chem.	1 Lect. 3 Lab.	Physiological Chem.	1 Lect. 3 Lab.

SENIOR YEAR

First Semester

Courses	Hrs. per wk.
Economics	3 Lect.
Materia Medica	2 Lect.
Food & Drug Anal.	1 Lect. 6 Lab.
Prescript. Practice	1 Lect. 3 Lab.
Com. Pharmacy	3 Lect.
*Military Training	5 Hrs.

Second Semester

Courses	Hrs. per wk.
Posology & Tox.	4 Lect.
Materia Medica	2 Lect.
Food & Drug Anal.	1 Lect. 6 Lab.
Prescript. Practice	1 Lect. 3 Lab.
U. S. P. & N. F.	3 Lect.
*Military Training	5 Hrs.
Pharm. Jurisprudence	1 Lect.

ELECTIVES

Electives for the year must total eight semester hours

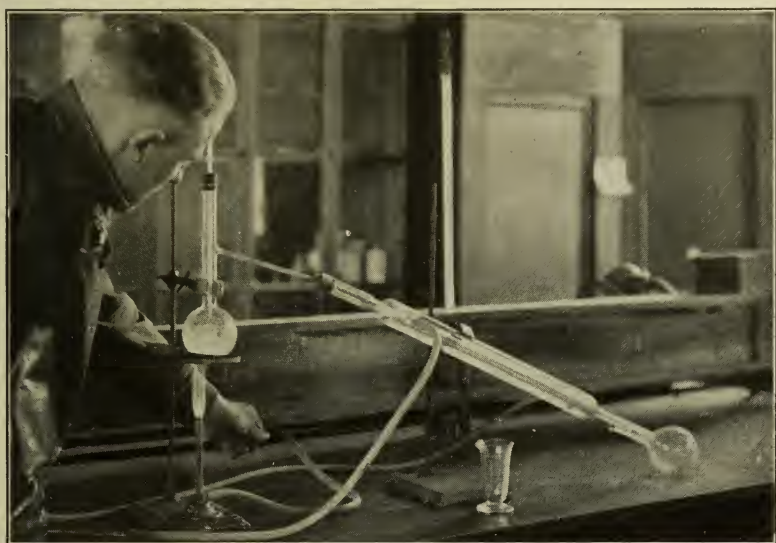
Adv. Bacteriology	2 Lect. 4 Lab.	Adv. Bacteriology	2 Lect. 4 Lab.
Adv. Quant. Anal.	2 Lect. 6 Lab.	Adv. Quant. Anal.	2 Lect. 6 Lab.
Physical Chemistry	3 Lect.	Physical Chemistry	3 Lect.
Education	3 Lect.	Education	3 Lect.
French	3 Lect.	French	3 Lect.
German	3 Lect.	German	3 Lect.
Physiological Chem.	1 Lect. 3 Lab.	Physiological Chem.	1 Lect. 3 Lab.
Adv. Pharm. Chem.	2 Lect. 6 Lab.	Adv. Pharm. Chem.	2 Lect. 6 Lab.
Animal Histology	2 Lect. 4 Lab.	Adv. Microscopy	1 Lect. 3 Lab.
Physics	3 Lect.	Physics	3 Lect.

*For students entering the Reserve Officers Training Corps

PHARMACY

The work in Pharmacy at Purdue is considered the most important branch of the course. For this reason no means have been spared to completely equip the Pharmacy laboratories, and the work is made thoroughly practical. Every phase of pharmaceutical technique is taught by practical laboratory work. The Pharmacy courses are designed to fit the student to meet every demand that may be made upon him, as a dispenser of drugs in a retail store or a dispensary, or in any other establishment where drugs and medicinal preparations are manufactured, tested or dispensed.

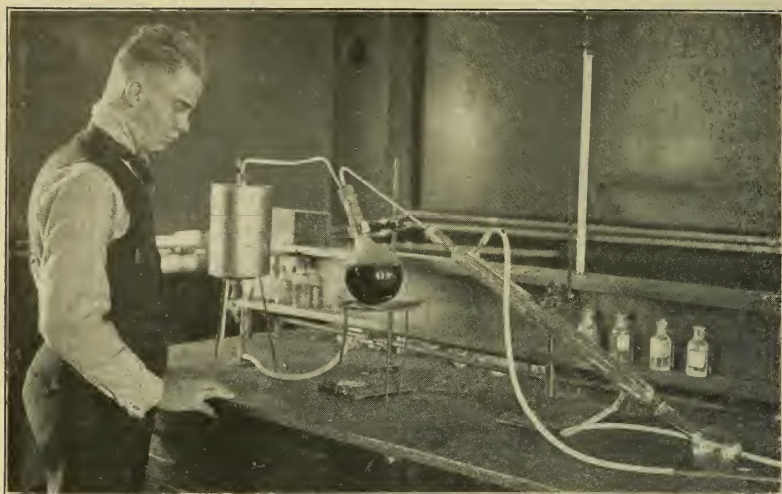
The student is not merely taught a great number of manipulative processes, but he is taught the fundamental theories of such processes. Therefore, the courses in Pharmacy are both practical and theoretical, composed of lectures, recitations, quizzes and laboratory work.



Illustrating Simple Distillation in Beginning Pharmacy

Beginning Pharmacy.—In the beginning course in Pharmacy, the first few weeks are spent in studying such fundamental properties of substances as melting point, boiling point, solubility, specific gravity, etc. Also, the application and effect of heat and cold upon substances in relation to pharmaceutical processes are studied. These very properties of matter and a number of others so important for the best understanding of operative pharmacy are studied by actual laboratory experiment.

After the student has learned these elemental properties of substances, he is then directed in the making of U. S. P. and N. F. preparations. By the end of the first year, the student has had to make every practical type of pharmaceutical preparation. The student not only

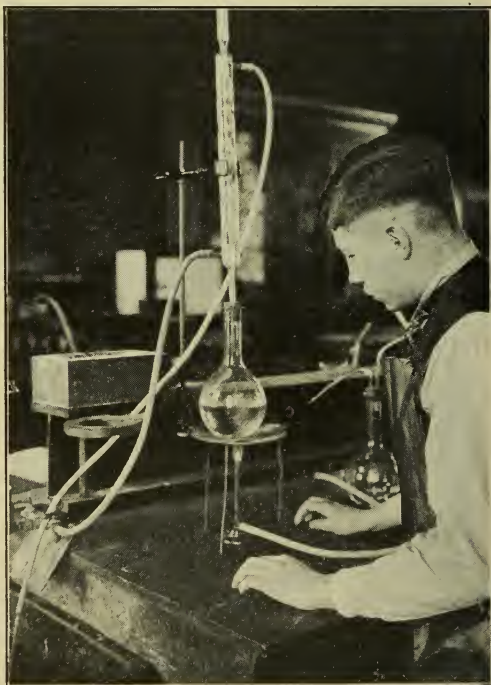


Making Oil of Cloves by Steam Distillation

makes the preparations, but he is directed in the exercise of the best and most efficient operative processes. This feature is exceedingly practical and very helpful. During the first year's work each student is required to make at least one hundred preparations and may make as many more as he wishes.

Prescription Practice.—

The second year's work in Practical Pharmacy is work in the dispensing and prescription laboratory. At Purdue, students have an unusual advantage by having the opportunity of working in one of the most modern and best equipped dispensing laboratories in the country. Each student is directed in the filling of many practical and complex prescriptions that have been collected from the files of a great number of stores in Indiana and other states. The problem of incompatibilities is studied with great emphasis and is never lost sight of in any work with



Purification of Alcohol by the Use of Potassium Hydroxide

prescriptions. In this work the student is also taught proper systems of filing, numbering and checking prescriptions.

In addition to this practice work, our prescription department fills prescriptions, written by the University Physician, for students free of



Finding Specific Gravity by the Use of Hydrometers

charge to the student. Regular hours each day are set aside for filling these prescriptions. These are filled by Senior students under direct supervision of a registered pharmacist. Therefore, no student graduates in Pharmacy at Purdue without having had actual practical experience in the compounding of physicians' prescriptions. This is a big factor in a man's qualifications when he goes out as a graduate in Pharmacy.

Toilet Preparations.—A few weeks at the end of this course in practical Pharmacy are spent in the manufacture and study of toilet preparations. While the time spent

in this phase of the work is brief, yet the student learns many practical formulas and their manufacture.

Commercial Pharmacy.—The course that has been most recently added to the curriculum at Purdue is the course in Commercial Pharmacy. This is a course of interest and growing importance. It bears directly upon the problems of the retail pharmacist. Every effort is being made to build this course up in accordance with problems and demands of the retailer. The Library books for this course have been selected with great care, and the students are made to become familiar with the best works upon the various phases of retail problems.

The course deals with the many problems of store management as buying, pricing, inventory, discounts, proper methods of figuring profits, etc. The problems of store location, classes of trade, clerks, etc., are studied. The problems of salesmanship and advertising are studied at great length. The object of the



Determining the Specific Gravity of Syrup by the Use of the Westphal Balance

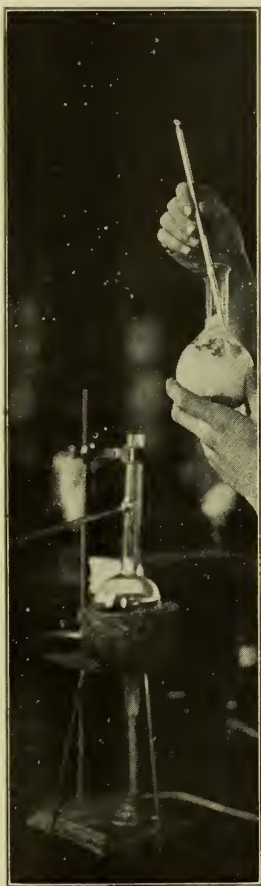
course is to guide the student along the proper lines of thought regarding these subjects and to point out some of the underlying principles of successful retailing. In conjunction with this course experts in advertising, salesmanship, banking, insurance, etc., are brought to the school to lecture upon these many important phases of good business. This is a helpful and valuable feature of the work.

Pharmaceutical Arithmetic.—No pharmacist is a safe dispenser if he is not able to make mathematical calculations incident to compounding. It is important that he be able to calculate dose, prepare percentage solutions, reduce and enlarge formulae, and calculate volume and weight. A course in Pharmaceutical Arithmetic consisting of two lecture and recitation hours per week for one semester is required of all Pharmacy students.

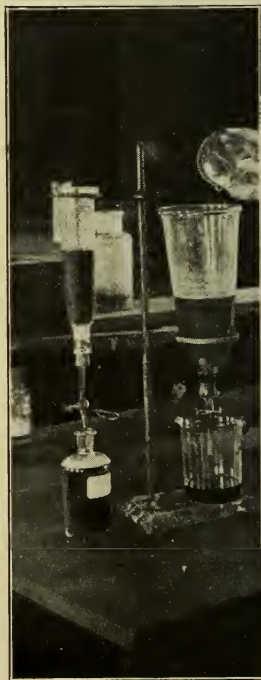
In this course instruction is given which deals with all mathematical calculations incident to practical pharmacy. The course is made thoroughly practical by frequent use of State Board problems.

Pharmaceutical Latin.—This course is designed to acquaint the student with the system of pharmaceutical nomenclature. It is absolutely necessary that there be some system in the naming of drugs, chemicals, and preparations. This course teaches the proper English pronunciation and latinization of U. S. P. and N. F. preparations. The student

is also taught prescription Latin that he may be able to correctly interpret Latin terms and abbreviations as are found in physicians' prescriptions. This work is supplemented with the reading of a large number of complex and varied prescriptions collected from various sources. The application of this course, which is offered in the first year, is made in the course in dispensing and prescription practice.



Testing the Accuracy of
a Thermometer



Percolations of Syrups.

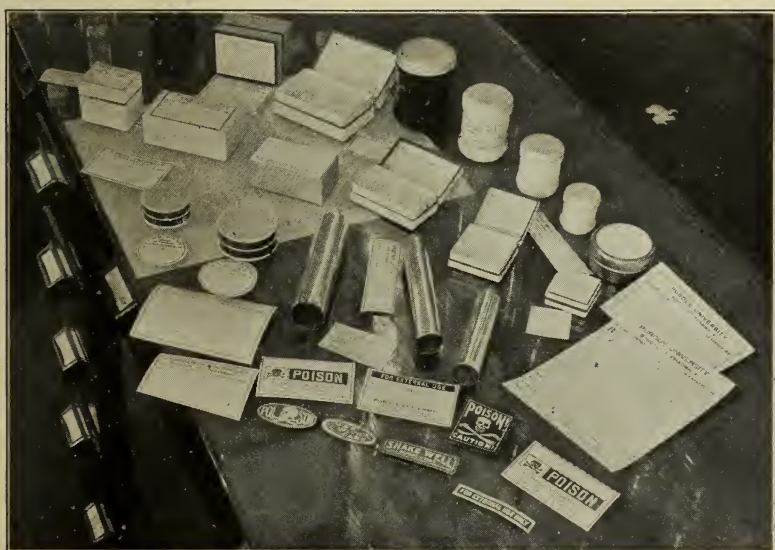


Apparatus for Making Suppositories

United States Pharmacopoeia and National Formulary Study.—

In the last part of the last year of the student's course a critical study and review of the U. S. Pharmacopoeia and National Formulary, and a study of recent contributions to pharmaceutical literature is given.

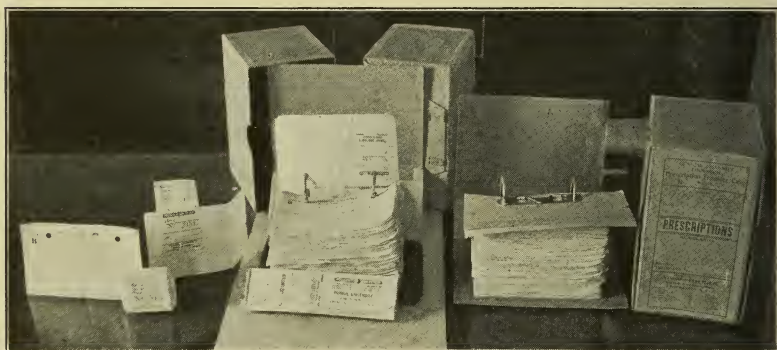
Since in the U. S. P. and N. F. all phases of Materia Medica, Dosage, Chemistry, Testing, Assaying, Pharmacy, etc., appear, the course is extremely practical as review study for all pharmaceutical work.



Showing Labels and Containers Used in Prescription Work



Apparatus for Preparing Infusions



Prescriptions and Files



Well Wrapped Packages

Poorly Wrapped Packages

MATERIA MEDICA

Materia Medica is the science of the knowledge of agents used in medicine and, since such knowledge has many angles and such agents are of great diversity, the general subject naturally subdivides easily. Such subdivisions may differ in name and character, but to cover the field thoroughly no little time will suffice.



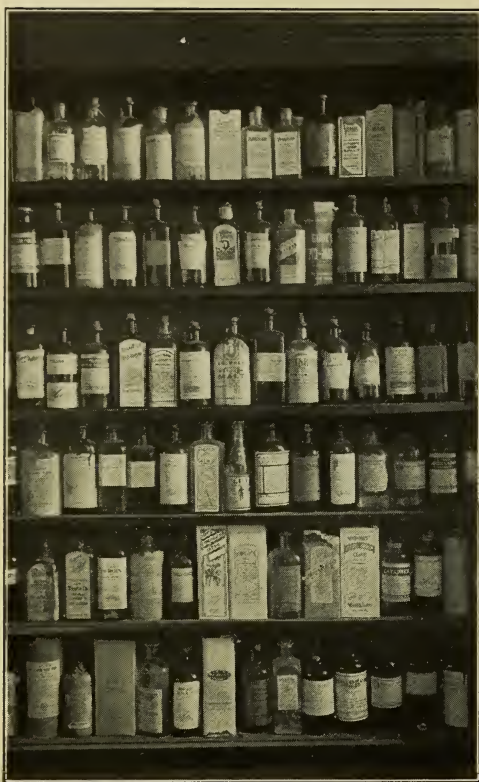
Crude Drug Samples

The great importance of Materia Medica to the pharmacist is self evident. He is continuously handling and dealing with agents used in medicine. He cannot know too much concerning them—their strengths, keeping qualities, proper colors, proper tastes, solubilities, common adulterants, various names, abbreviations, reactions, sources, uses, doses, etc. All Pharmacy students pursue Materia Medica subjects continuously for two school years.

Vegetable and Animal Materia Medica.—This line of study is fundamental in pharmaceutical education and therefore of great importance. All the valuable and common vegetable and animal drugs are studied in detail with special attention given to methods of collection, marketing, storing, preserving, and to those constituents which make the drug useful. Students must learn to identify these crude drugs in their original form as well as otherwise. Throughout their two



Volatile Oils Studied in Materia Medica



Some of the Proprietary Medicines Studied in
Modern Materia Medica

examination of powdered crude drugs and foods. This course covers the microscopic study of starches and U. S. P. powdered drugs and their adulterants. The number of substances studied in the

or four years course these drug samples are accessible for study or review.

Inorganic and Organic Materia Medica.—In these courses inorganic drugs such as copperas, saleratus, Rochelle salts, sugar of lead, etc.; organic drugs such as aspirin, acetanilid, salol, ether, chloroform, etc., are studied carefully. The work is not hurried but proceeds systematically. Samples of everything studied are accessible throughout the student courses.

Microscopy of Powdered Drugs.—This course is a study of the microscopic features of powdered drugs. The microscope is being more and more resorted to in the analysis of powdered drugs and foods. It is within the power of every pharmacist to be the microscopist of his community. For this and other reasons, pharmacy students at Purdue are instructed in the



Showing Some Active Constituents of Crude Drugs

course are necessarily limited, but the selection is made to present a wide variety of microscopical features, and the technique involved fits the student for any further individual study he may wish to pursue. This work, in addition to the work in Bacteriology and Food Analysis, will fit a student for positions in food, chemical and inspection laboratories, where the microscope is final in many analyses. It is preceded by a course in General Biology given in the first year's work.

Modern Materia Medica.—The druggist's prescription shelf is a veritable maze of modern, new and non-official synthetic remedies of good, bad and indifferent qualities.

The well trained pharmacist should know considerable about this stock, and be informed, as well, where he can find out when he doesn't know about it. These newer remedies form the basis of this course.

Pharmacology.—This course is designed to give the young pharmacist a concise survey of the modern conceptions and knowledge of



Specimens of Proprietary Medicines Donated by Eli Lilly & Co.

drug action. No pretension is made to fit him for prescribing in the treatment of disease. But it is highly important in successful prescription practice that the pharmacist sense the therapeutic intention of the doctor's prescription to be able to co-operate with him in getting the exact effect desired,—therefore, this course. Demonstrations of physiological action of drugs are given.

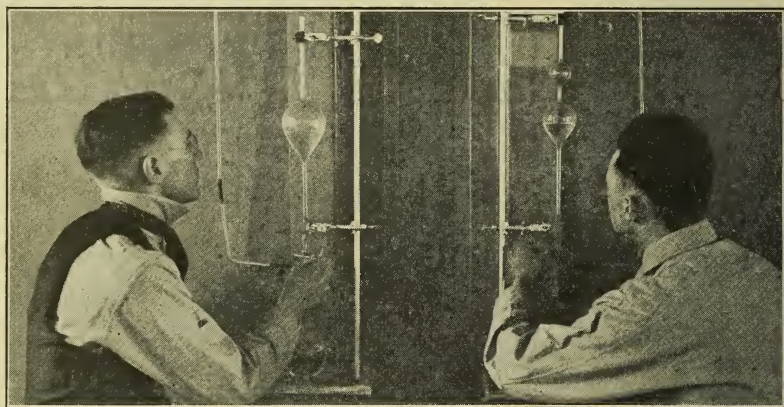
Dosage.—The science of posology or dosage is much more comprehensive and exacting from the pharmaceutical than from the medical standpoint. The dose of every item on a prescription must be safe and the law holds the pharmacist responsible for such safety, and not the doctor who wrote the prescription. The pharmacist must then have careful and thorough training in dosage and such training is given in this course.

Poisons, Their Action, and Antidotes.—The subject matter of this study is highly important to pharmacists working, as they do, always in the shadow of a possible serious mistake. All the common poisons are classified, thoroughly studied and their antidotes learned.

CHEMISTRY

A thorough understanding of the science of chemistry is essential to a course in Pharmacy as the pharmacist deals with chemicals, both simple and complex. Many of the incompatibilities met with in prescription compounding are of a chemical nature, and, in the making of many of the pharmaceutical preparations, chemical reactions are involved, therefore the pharmacist should be well grounded in this very important science.

The many branches of chemistry are taught at Purdue, including General Chemistry, Qualitative and Quantitative Analysis, Organic Chemistry, Drug Assay, Physiological Chemistry, Physical Chemistry,



Calibration of Flasks

and Food and Drug Analysis. In teaching these subjects, direct application is always made to pharmaceutical practice wherever possible.

The students of the Two-Year Course in Pharmacy receive instruction for one year in General Chemistry, and one-half year in each of the following: Qualitative Analysis, Quantitative Analysis, Organic Chemistry, Drug Assay, and Organic Qualitative Analysis. The students of the Four-Year Course receive the above mentioned instruction and in addition further instruction in qualitative and quantitative analysis, organic chemistry and one year of Food and Drug analysis, and may elect one year of Physiological Chemistry and one year of Physical Chemistry.

General Chemistry.—Instruction in General Chemistry consists of lectures and laboratory work and is required of all pharmacy students. The course is administered in the Chemistry Department and the Pharmacy students enter the class with chemical engineers, science and Agriculture students. Thus in this course and in others, the pharmacy students brush shoulders with the other students of the University and receive the benefits that are to be derived from such contact. A large, well equipped laboratory is provided for this instruction.

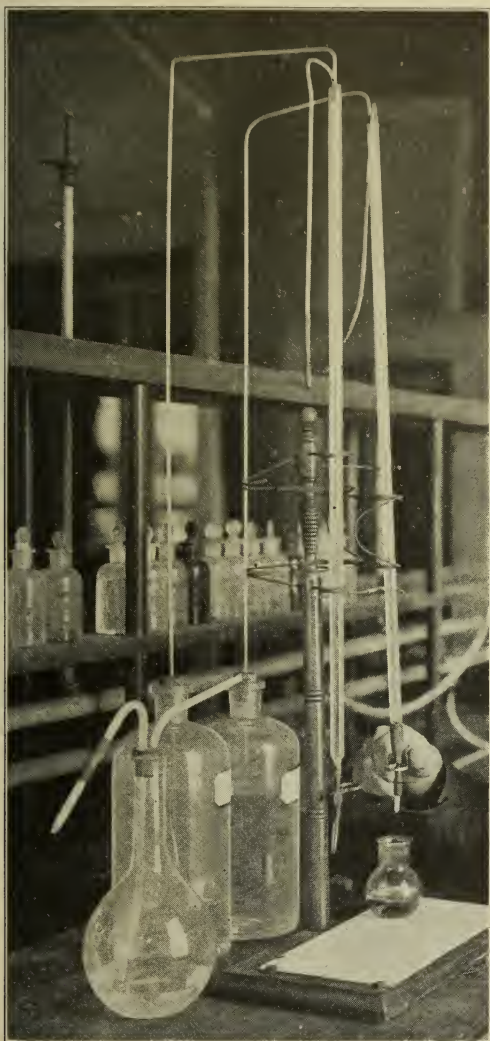
The lectures deal with the elements and compounds and the fundamental theories of the science. They are illustrated by experiments.

The laboratory work follows the lectures closely and is largely quantitative in character. Here the student learns how to detect acid radicles such as chlorides, bromides, iodides, sulphates, carbonates, etc.

Qualitative Analysis.—For the student of the Two-Year Course this work is administered in the Pharmacy Department and consists of

lectures and laboratory work for one-half year. It is a general study of metals and of qualitative analysis. The lectures deal with the theories of qualitative analysis, and the practical methods of separation and identification of metals and acid radicles. In the laboratory a number of unknown mixtures both in liquid and solid form, are analyzed. Since this course is administered to Pharmacy students only, the particular needs of the dispensing laboratory are kept constantly in mind and attention is called to all reactions that may constitute incompatibilities in prescription compounding. Tablets, tablet triturates, pills, and other pharmaceutical preparations are qualitatively tested in the laboratory.

For the student of the Four-Year Course, the work is administered in the Chemistry Department, and consists of lectures and laboratory work for one year. The lectures deal with underlying principles of analysis, particularly the application of the theories of electrolytic dissociation and chemical equilibrium. The labora-



Final Steps in the Assay of Belladonna for Atropine

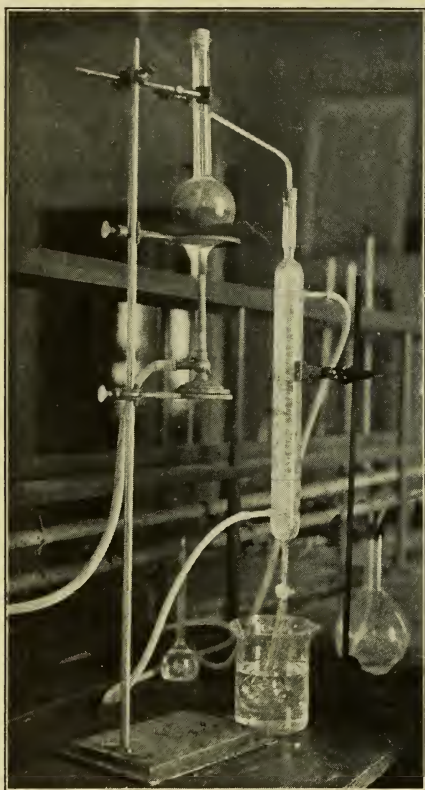
tory work consists of the identification of the common minerals and acid radicles by the most approved methods.

Quantitative Analysis.—The course in quantitative analysis for the Two-Year students consists of lectures and laboratory work for one-

half year. This course is administered in the Pharmacy Department to Pharmacy students only, therefore special attention is given to the methods involved in Drug Assay. The lectures deal with the theories and practical technique of analytical determinations. In the laboratory, quantitative analysis of compounds and pharmaceutical preparations are made, illustrating the gravimetric, volumetric, and gaseometric methods of the U. S. P.

The course in quantitative Analysis for the Four-Year students is administered in the Chemistry Department and consists of lectures and

laboratory work for one year. This is a study of quantitative analysis, both gravimetric and volumetric, including electrolytic methods. Special attention is given to the theory and general principles as essential for accurate work.



Determination of Alcohol in a Fluid Extract

Organic Chemistry.—Organic drugs are occupying a constantly increasing proportion of the drug field. In our new U. S. Pharmacopoeia two new vegetable drugs were added and a long list of vegetable drugs were discarded, while a still longer list of organic drugs were added to that authority. Synthetic organic drugs having definite physiological action can now be made to order. A certain group is added onto the molecule here and the compound is a hypnotic; if this group is displaced by a certain other the compound is a vaso-dilator, or a cardiac depressant, or a cerebro-excitant, etc.—the science of chemo-therapy. A trained pharmacist should understand *why* aspirin is an acid, and *why* carbolic “acid” is not an acid at all;

why menthyl salicylate and salol are both esters, although one is a liquid while the other is a solid; *why* benzoic acid crystals appear in benzaldehyde and the result of same; or *why* trioxymethylene—a solid—can be made to furnish formaldehyde—a gas.

It is all intensely interesting, and highly practical. Ample time is given to the teaching of this subject of Organic Chemistry and the field is carefully covered.

Advanced Organic Chemistry.—In this course the laboratory practice of organic chemistry is emphasized. The student goes into the

laboratory and makes and purifies organic chemicals such as ethyl chloride, acetanilid, urotropin, acetone, lactic acid, diazo and azo dyes, toluene, glycerin, benzoic acid, salicylic acid and its methyl derivative, urea, chloral hydrate, etc.

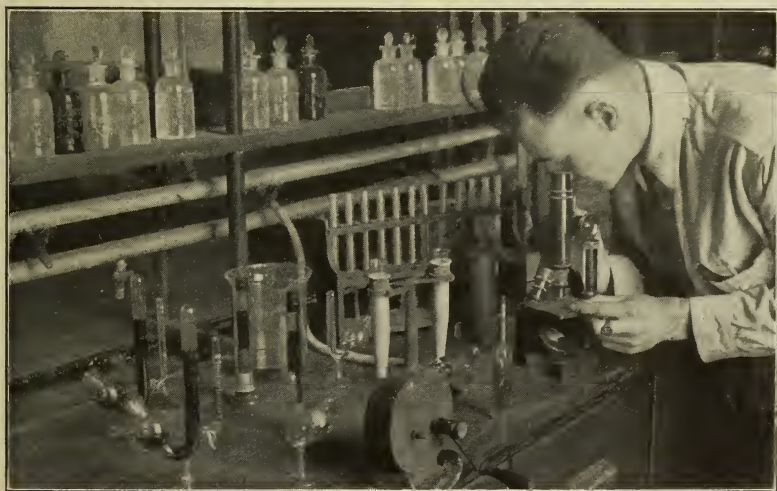
Lectures and theory precede these exercises.

Organic Qualitative Analysis.—This course is planned to prepare the student to understand organic incompatibilities, to be able to analyze urine, and to identify the most important alkaloids by well-defined qualitative tests. The course consists of lecture and laboratory work for one semester. In the laboratory the students apply qualitative tests for organic compounds and study the incompatibilities that may be expected. The following reactions are typical: The action of a ferric salt upon a salicylate and a benzoate, the action of strong bases on chloral, the identification of methyl alcohol in grain alcohol, etc.



Polariscope Estimation of Spirit of Camphor

Urinalysis.—The students make a practical analysis of a sample of urine, detecting the following points: Color, odor, and general appearance, reaction, specific gravity, qualitative and quantitative determination of albumin and sugar, microscopical examination of the sediment, etc. When they have completed this work, they are qualified to make the tests usually called for by physicians.



Analyzing a Sample of Urine

In the study of alkaloids they are taught how to isolate and identify the common alkaloids. The "shaking out" process is thoroughly explained and the students perform it many times. Such incompatibilities as arise when a base is added to an alkaloidal salt, when an iodide or tannate is added to preparations containing alkaloids, etc., are carefully studied.

This course is required of all Pharmacy students and direct application to the work of the dispensing counter is always emphasized.

Drug Assay.—This course consists of lectures and laboratory work for one-half year, and treats of the quantitative estimation of the active constituents of drugs by Pharmacopoeial methods. Crude drugs, fluid and solid extracts, tinctures, elixirs, syrups, tablets, pills, etc., are subjected to alkaloidal analysis. The active constituents of pharmaceutical preparations, and of volatile oils, are determined. The lectures include a discussion of physiological methods of drug assay.

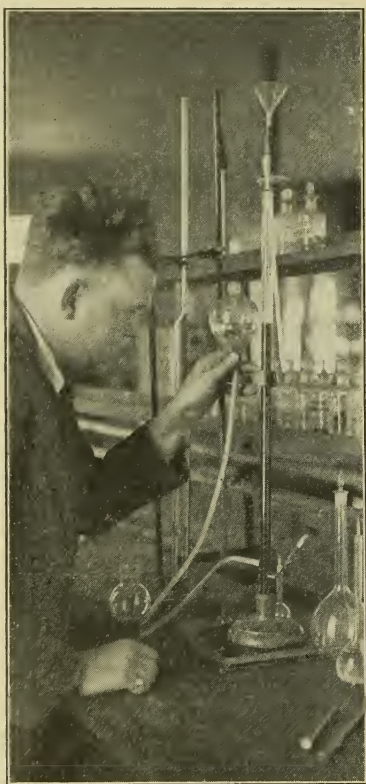
Pharmacists, who have had this course, are prepared to assay the pharmaceutical preparations that they manufacture and thus meet the requirements of the Food and Drug Laws. There is a great demand today for drug chemists and this course with the fundamental courses in Chemistry, prepares for the work of national, state, and private drug laboratories.

Food and Drug Analysis.—Since the Pure Food and Drug Law became operative there has been a great demand for trained analysts in this field. This course is designed to meet exactly that demand. Admission to the course is held off from all those not well grounded in qualitative, quantitative, and organic chemistry. As

a result strictly first class work can be demanded of all taking the work.

Analyses are made of such foods as milk, butter, vinegar, meats, extracts, canned goods, baking powder, jellies, etc., and the methods used are all standard—usually those employed by the United States Government.

Physiological Chemistry.—In this course lectures and laboratory training are given in those lines of work essential to the physician's correct diagnosis, exclusive of bacteriological methods which are given to



Analysis of Sweet Spirit of Nitre

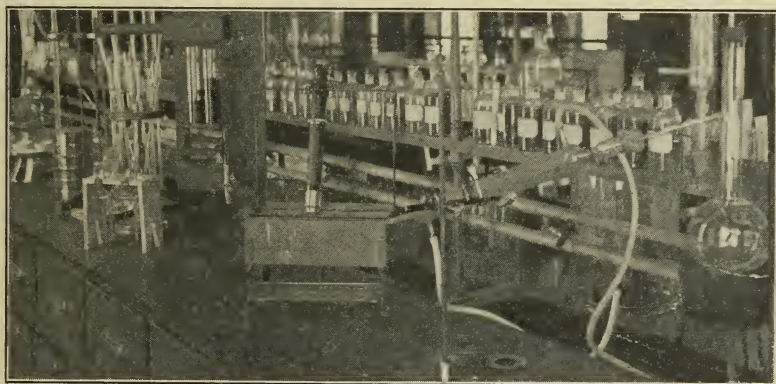


Centrifuge and Related Apparatus Used in Food Analysis

pharmacy students in a separate course. Important features of the laboratory course include direct and differential blood counts, spectroscopic tests for various pathologic hemoglobins, blood tests, hemolysis studies, gastric analysis, (Rehfuß Method used) pepsin and other enzyme estimation and study, protein testing, identification of protein split-products, thorough drill on chemical and microscopic urine analysis, bile tests, organ functioning tests, etc.

The pharmacist trained along these lines commands the respect and confidence of any doctor and has a side-line that is interesting, serviceable and valuable.

Physical Chemistry.—This course is administered in the Chemistry Department and consists of three lecture hours per week for one year. It is not required of Pharmacy students, but may be elected in the Senior year. The lectures deal with the constitution of matter, the general properties of gases, liquids, and solids, the phenomenon of solutions, and the special topics of electro-chemistry, thermo-chemistry, chemical statics and dynamics, photo-chemistry and the phase rule.



Apparatus Used in Food and Drug Analysis

Many of the recent advances in the science of chemistry have been made possible through a study of physical chemistry and much attention is being given to this very important branch of the science.



Apparatus for Stomach Analysis

BIOLOGY

The courses in Biology cover the following: General Biology, Pharmaceutical Botany, Physiology and Hygiene, and Bacteriology. All of the work is administered in the Biology Department by men who are experts in each line of work. The Pharmacy students enter these classes with other students of the University and enjoy the advantages this contact offers. Purdue has a splendid, new, well-equipped Biology building, and every convenience for good instruction is provided.

Plant Histology and Pharmaceutical Botany.—This course consists of lecture and laboratory work for one year and is required of



Apparatus for Microscopic Analysis

all Pharmacy students. The first semester is devoted to the study of cell life and constant use of the microscope is required throughout the work. Particular attention is given to the cell structure of medicinal plants as this course prepares our students for the study of microscopy of drugs.

The second semester is devoted to the study of Pharmaceutical Botany and the identification of medicinal plants indigenous to Indiana. Many field trips are taken both in Spring and Fall to give the students opportunity to identify these medicinal plants in their native condition.

Physiology and Hygiene.—An understanding of Physiology and Hygiene is essential to the pharmacist in order to understand the thera-



Section in Pharmaceutical Botany

peutic action of drugs. This work is fundamental to the study of therapeutics, toxicology, and posology which follows it.

Physiology and Hygiene for the Two-Year students in Pharmacy consists of three lecture and demonstration hours per week for one semester. For the Four-Year students it consists of three lecture and demonstration hours per week for a year. The fundamental principles of Anatomy, Physiology and Hygiene are presented to give the students a clear understanding of the activities of the human body. The work is presented by the University Physician, a man well qualified to give the instruction.

Bacteriology.—Bacteriology has ceased to be a subject of importance to the medical profession only, but has become intimately associated with the work of the pharmacist and dentist.

In the various courses in Bacteriology designed to meet the pharmacist's special needs, attention is given to the following lines of study: methods of sterilization; preparation of the various media; detection, isolation and identification of bacteria, moulds, yeasts, and protozoa and

the role they play in nature is expounded. The bacteriology of air, milk, soil and water is studied.

The way in which micro-organisms produce disease, methods of increasing and decreasing their virulence; the production of immunity; their sources of infection, avenues of entrance and the way they leave the diseased body, the methods of prevention are carefully considered.

Animal inoculation, post-mortem examinations, and special staining methods are employed for diagnostic work.

Testing of antiseptics and disinfectants; determining the phenol-coefficient; the preparation of tuberculin, diphtheria and tetanus toxins; antitoxic and anti-infectious sera; serum reactions; and immunization



Bacteriology Laboratory

of animals, preparation of special glass-ware, vials, pipettes, collodium sacs, etc. The drawing of blood, collection and sterilization of serum, and the filtration of bacterial fluids, receive careful study.

Blood parasites such as spirochetes, trypanosomes, plasmodia, etc., will be studied in living and stained condition and their special cultivation. Invisible organisms and inoculation for rabies are taken up.

The preparation of "autogenous" and "stock" bacterial vaccines; antirabic treatment; agglutinins, precipitins, cytolysins, opsonins. Special attention given to the identification of blood and the Wassermann reaction for syphilis.

ENGLISH, MATHEMATICS, PHYSICS, MODERN LANGUAGES, HISTORY AND ECONOMICS

Purdue maintains excellent departments of English, Mathematics, Physics, Modern Language, History and Education.

These departments administer to the needs of all students of the University. They offer the usual cultural courses, and, in addition, special courses to fit the needs of the different schools of the University.

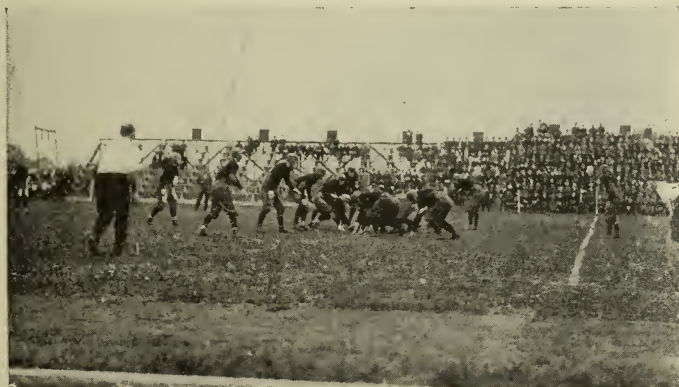
MILITARY TRAINING

The act of Congress endowing the University requires that Military Science and Tactics be taught. In order to receive the benefits of recent legislation, and to afford an outlet and stimulus for the work, the Military Department is administered as a unit of the Reserve Officers' Training Corps. The course of instruction is both practical and theoretical in Infantry service, and is under the direction of an officer of the United States Army, detailed for that purpose, assisted by officers and non-commissioned officers from the Regular Army.

Military Training is compulsory for all physically fit, non-alien, male students of the two lower classes. Excuses are granted only in exceptional cases, and then only in accordance with the published regulations of the Corps of Cadets. Aside from the advantage of military knowledge, the benefits of healthful exercise, strict discipline and the tendency to correct minor physical defects make this course a valuable adjunct to University life.

The U. S. government will provide each cadet with a complete uniform and the equipment of an infantry soldier. To cover any loss or damage of these articles, except that due to fair wear and tear, it is required that \$15 be deposited with the Bursar at registration. The balance remaining when the student has completed his military instruction or has become separated from the University, will be returned to the student.

Cadets of the Junior and Senior classes who contract in writing to devote five hours per week to the prescribed course, and to attend two summer camps of four weeks each, will receive compensation from the federal government at the rate of about \$9.00 per month and camp expenses. Those who complete the four years' course in a satisfactory manner will be eligible to become Reserve Officers in the United States Army; and will receive upon graduation a special Military Diploma from the University.



At Play



FAIRCHILD SCHOLARSHIP IN PHARMACY

Mr. Samuel W. Fairchild, of New York City, offers a scholarship annually amounting to \$300 in cash, to the High School graduates of the United States, who wish to follow pharmacy as a vocation.

Competitors for this scholarship must have completed a four year High School course, must have had two years' practical experience in Pharmacy, and must take an examination in Elementary Chemistry, Elementary Materia Medica, practical Pharmacy and Prescription Reading, and elementary business knowledge.

This scholarship is to be granted each year. Students graduating in June, 1918, and former graduates who have not attended college are eligible to take the examination. Underclassmen in high school who are interested in this scholarship should begin systematic preparation for future examinations. It is desired that High School Principals announce this scholarship to their students, underclassmen, as well as seniors, and that registered pharmacists inform their apprentices of this opportunity.

INSPECTION TRIP

An annual inspection trip requiring two days is provided for the Senior students. One day is spent in the city of Indianapolis inspecting the most important professional and commercial pharmacies, the wholesale drug houses, glass factory, etc. The second day is devoted to the inspection of Eli Lilly & Co.'s manufacturing laboratories, their biological plant and drug plant gardens.

The inspection trip is made a part of the course and is conducted as a class exercise, especial attention being called to all important operations.



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JAN 8 1931

Some of the Pharmacy Magazines Read by Our Students

THE UNIVERSITY OF CHICAGO